

What is claimed is:

1. A sensor array integrated electrochemical chip comprising:

an array of electrodes, at least one electrode of said array of electrodes being covered by a coating doped with a ferrocene compound.
2. The chip of claim 1 wherein said coating is a supported bilayer lipid membrane doped with said ferrocene compound.
3. The chip of claim 2 wherein said ferrocene compound is benzoylferrocene.
4. The chip of claim 1 wherein said ferrocene compound is oxidized.
5. The chip of claim 1, further comprising:

a first plate having said array of electrodes thereon;

a second plate having an opening, said second plate bonded to said first plate so that said first plate and said second plate define a cavity, with said array of electrodes being within said cavity.
6. The chip of claim 5, wherein said opening is a window.
7. The chip of claim 5, wherein said opening is a depression.
8. The chip of claim 5 wherein said array of electrodes comprises an array of working electrodes.
9. The chip of claim 8 wherein each of said working electrodes is covered with a supported bilayer lipid membrane doped with a ferrocene compound.
10. The chip of claim 8 wherein said array of electrodes further comprises at least one of a counter electrode and a reference electrode.
11. The chip of claim 5 wherein said second plate further comprises at least one cantilevered electrode extending into said window.
12. The chip of claim 11 wherein said at least one cantilevered electrode comprises at least one of a cantilevered reference electrode and a cantilevered counter electrode.

13. The chip of claim 5 wherein a layer of said first plate abutting said second plate is an insulating layer.
14. A method of forming an electrochemical chip, comprising:
- forming a first plate by:
 - depositing a conducting layer on a first support; and
 - etching said conducting layer to form an electrode array;
 - forming a second plate by:
 - etching an opening in a second support;
 - bonding said second plate to said first plate such that said first plate and said second plate define a cavity, with said electrode array being within said cavity.
15. The method of claim 14 wherein said opening is a window.
16. The method of claim 14 wherein said opening is a depression.
17. The method of claim 14 further comprising covering at least one electrode of said electrode array with a coating doped with a ferrocene compound.
18. The method of claim 17 further comprising oxidizing said ferrocene compound.
19. The method of claim 14 wherein said coating is a supported bilayer lipid membrane.
20. The method of claim 14 wherein said ferrocene compound is benzoylferrocene.
21. The method of claim 14 further comprising etching said conducting layer to form a plurality of conducting lines, each of said conducting lines extending from an electrode of said electrode array outwardly beyond a periphery of said electrode array.
22. The method of claim 14 further comprising forming said first support by depositing an insulation layer on a silicon wafer.
23. The method of claim 22 further comprising depositing an overlying insulation layer over said conducting layer about a periphery of said array, said second plate being bonded to said first plate at said overlying insulation layer.
24. The method of claim 14 wherein said second support comprises a silicon wafer.

25. A method of forming an electrochemical chip, comprising:

forming a metal array; and covering at least some elements of said array with a supported bilayer lipid membrane doped with a ferrocene compound.

26. Use of a ferrocene compound as a dopant in an electrode coating.

27. A sensor array integrated electrochemical chip, comprising:

a first plate having an array of electrodes thereon;

- a. a second plate having an opening, said second plate bonded to said first plate so that said first plate and said second plate define a cavity, with said array of electrodes being within said cavity.

28. The chip of claim 27 wherein said opening is a window.

29. The chip of claim 27 wherein said opening is a depression.

30. The chip of claim 27 wherein said first plate has a plurality of conducting lines formed on a same surface of said first plate on which said array of electrodes is formed, each of said conducting lines extending from one of said electrodes outwardly beyond a periphery of said array.